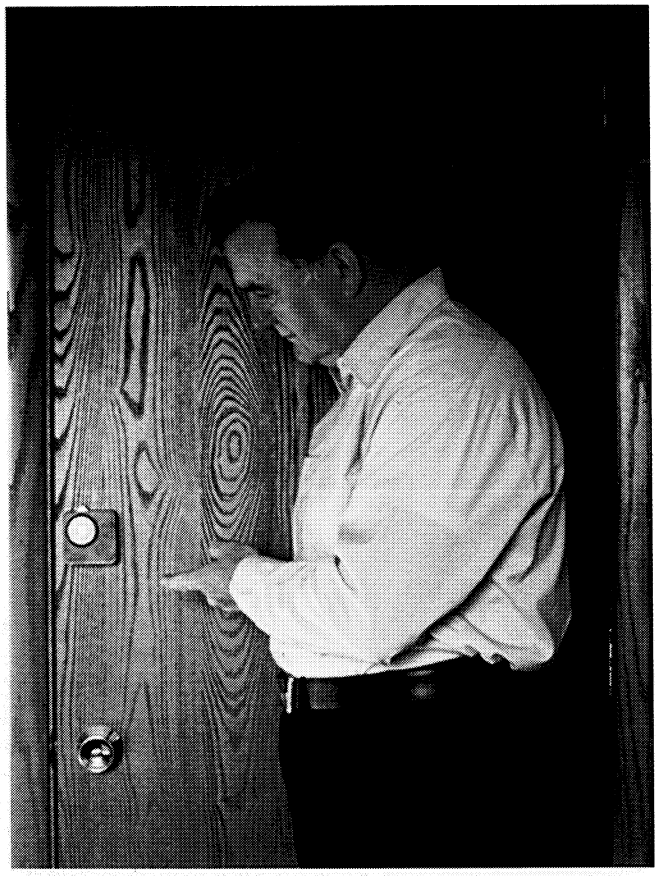
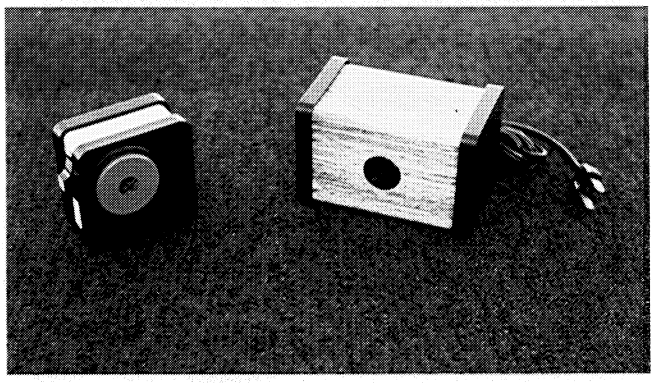
## Visual Alert System

At right, inventor James Campman of Grace Industries, Inc., Transfer, Pennsylvania, is displaying a door installation of the company's Concept I Visual Alerting System (VAS), a multipurpose security device for home or office that combines visual and audible alerts. Intended primarily as a burglar alarm, smoke alarm, door or telephone alert for hearing-impaired people, the VAS is a second-generation spinoff based on electronic circuitry originally developed under contract to Langley Research Center.

The VAS consists of two basic components shown in the lower photo: an audio transponder (white unit) and a companion receiver. Attached to a door, window or telephone, the transponder detects vibrations caused by such noises as a knock on a door, a break-in attempt, opening of a window or a ringing telephone. The vibrations are converted into a loud beeping tone that is transmitted to the receiver plugged into an electrical outlet. The receiver, in turn, switches on a lamp or causes it to flash. The receiver's sensitive electronic circuitry also detects sounds made by smoke alarms and provides a visual alert. The VAS is designed to deter intruders by the loud beeping noise and additionally to serve as an economical, reliable visual signaling device for those unable to hear sonic alerts.

The VAS traces its technological lineage to low noise, low voltage circuitry developed by Applied Cybernetics Systems Inc. for NASA/Langley as part of a telemetry system for relaying spacecraft data to ground station computers. James Campman, then Applied Cybernetics president, later left the company and formed Grace Industries to manufacture and market security devices based on the Langley technology. Grace Industries' first development, which employs the circuitry developed for satellite data relay, was a sensitive gas detector capable of sensing hydrocarbon gas concentrations of less than 50 parts in a million. Called the Electronic Nose®, it is primarily an arson detection device that senses post-fire accelerants—such as gasoline, benzine and other combustibles—used by arsonists to speed up fire spread. The unit saves investigators time and expense by allowing rapid acquisition of physical evidence for use in courts; it has also proved to be an arson deterrent because its fast, reliable analyses enable accelerated efforts to identify and prosecute arsonists.





It is widely used by police and fire departments and by insurance companies; it is also in use at several colleges and universities that offer criminal justice courses. In a related application, the Electronic Nose is in service with a number of oil companies as a means of detecting gas leaks in refineries and on oil rigs.

Grace Industries has experienced a steady 10 percent annual growth and is now producing the Electronic Nose at the rate of about 1,000 units a year. The success of that device provided capital to expand the company's product line with the Visual Alerting System, which was introduced in 1984. Grace Industries is conducting research and development on another security system, once again based on the NASA technology.

®Electronic Nose is a registered trademark of Grace Industries, Inc.